

TABLE OF CONTENTS

DRAFT ENVIRONMENTAL IMPACT STATEMENT

**ALLOCATION OF WATER SUPPLY AND
LONG-TERM CONTRACT EXECUTION
CENTRAL ARIZONA PROJECT**

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	ES-1
I PURPOSE AND NEED FOR THE PROPOSED ACTION	I-1
A. Introduction	I-1
B. Background.....	I-1
1. Overview of the CAP	I-1
2. Previous CAP Allocations and Current Contract Status.....	I-2
C. Purpose and Need for the Proposed Action.....	I-5
D. Project Location	I-6
E. Relationship of this Proposed Allocation to Other Activities.....	I-6
1. CAWCD	I-6
2. Gila River Indian Community Water Rights Settlement.....	I-7
3. SAWRSA	I-7
F. NEPA Considerations	I-7
G. Public Involvement/Scoping Process.....	I-8
II DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES.....	II-1
A. Introduction	II-1
B. Criteria Used in Formulating Alternatives.....	II-1
C. Alternatives Considered but Eliminated from Detailed Analysis.....	II-1
D. Alternatives Evaluated in the EIS	II-3
1. Settlement Alternative (Proposed Action)	II-5
a. M&I Sector.....	II-7
b. NIA Sector	II-7
c. Indian Sector.....	II-7
(1) GRIC	II-8
(2) TON	II-8
d. Other Uses.....	II-9
2. Non-Settlement Alternatives.....	II-9
a. Non-Settlement Alternative 1	II-9
(1) M&I Sector.....	II-10
(2) NIA Sector	II-10
(3) Indian Sector	II-10
b. Non-Settlement Alternative 2	II-11
(1) M&I Sector.....	II-11
(2) NIA Sector	II-11
(3) Indian Sector	II-11
c. Non-Settlement Alternative 3	II-12
(1) M&I Sector.....	II-13
(2) NIA Sector	II-14
(3) Indian Sector	II-14
3. No Action Alternative.....	II-15
a. M&I Sector.....	II-15
b. NIA Sector	II-16
c. Indian Sector.....	II-16
E. Effects of alternatives on selected resources	II-16
III AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....	III-1
A. INTRODUCTION	III-1

1. Purpose.....	III-1
2. Assumptions.....	III-1
3. Resources Evaluated and Structure of Section	III-2
a. Methodology	III-2
b. Affected Environment	III-2
c. Environmental Consequences.....	III-2
.d. Other Resources	III-4
B. WATER RESOURCES.....	III-5
1. Introduction.....	III-5
2. Impact Analysis Methodology	III-5
a. Groundwater Level Impact Analysis Methodology.....	III-5
b. Groundwater Quality Impact Analysis Methodology.....	III-6
c. Subsidence Impact Analysis Methodology	III-6
d. Effluent Impacts Analysis Methodology	III-7
e. Mainstem Impacts Analysis Methodology	III-7
3. Affected Environment.....	III-7
a. Pinal/Salt River Valley	III-7
b. Avra Valley	III-8
c. Tucson Area.....	III-9
d. SC Apache Tribe.....	III-9
e. Navajo-Hopi Reservations	III-10
f. Tonopah Irrigation District (TID).....	III-10
g. Carefree Basin.....	III-11
h. Chaparral Area	III-11
4. Environmental Consequences.....	III-12
a. Pinal County Area	III-12
(1) No Action Alternative	III-12
(2) Settlement and Non-Settlement Alternatives	III-13
b. Gila River Indian Community	III-14
(1) No Action Alternative.....	III-14
(2) Settlement and Non-Settlement Alternatives	III-14
c. East Salt River Valley	III-15
(1) No Action Alternative.....	III-15
(2) Settlement and Non-Settlement Alternatives	III-16
d. West Salt River Valley	III-17
(1) No Action Alternative.....	III-17
(2) Settlement and Non-Settlement Alternatives	III-18
e. Avra Valley.....	III-18
(1) No Action Alternative.....	III-18
(2) Settlement and Non-Settlement Alternatives	III-19
f. Tucson Area	III-19
(1) No Action Alternative.....	III-19
(2) Settlement and Non-Settlement Alternatives	III-19
g. San Carlos Apache Tribe	III-20
(1) No Action Alternative.....	III-20
(2) Settlement and Non-Settlement Alternatives	III-20
h. Hopi Tribe and Navajo Nation.....	III-20
(1) No Action Alternative.....	III-21

(2) Settlement and Non-Settlement Alternatives	III-21
i. Tonopah Irrigation District	III-21
(1) No Action Alternative.....	III-21
(2) Settlement and Non-Settlement Alternatives	III-22
j. Carefree Sub-Basin	III-22
(1) No Action Alternative.....	III-22
(2) Settlement and Non-Settlement Alternatives	III-22
k. Chaparral/Fountain Hills	III-23
(1) No Action Alternative.....	III-23
(2) Settlement and Non-Settlement Alternatives	III-23
l. Effluent.....	III-23
m. Colorado River Mainstem.....	III-24
5. Summary of Water Resources Impacts	III-24
C. SOCIOECONOMIC RESOURCES.....	III-27
1. Introduction.....	III-27
2. Impact Analysis Methodology	III-27
a. M&I Sector.....	III-27
b. NIA Sector	III-27
c. Indian Sector.....	III-29
d. Power Generation Sector.....	III-29
e. CAP Repayment	III-29
f. RRA	III-30
g. Indian Water Rights Settlement Litigation Costs	III-30
3. Affected Environment.....	III-30
a. M&I Sector.....	III-30
b. NIA Sector	III-30
c. Indian Sector.....	III-31
d. Power Generation	III-31
e. CAP Repayment	III-31
f. RRA	III-31
g. Indian Water Rights Settlement Litigation Costs	III-33
4. Environmental Consequences.....	III-34
a. M&I Sector.....	III-34
(1) No Action Alternative.....	III-34
(2) Settlement and Non-Settlement Alternatives	III-34
b. NIA Sector	III-34
(1) No Action Alternatives	III-36
(2) Settlement and Non-Settlement Alternatives	III-36
c. Indian Sector.....	III-346
(1) No Action Alternative.....	III-36
(2) Settlement and Non-Settlement Alternatives	III-36
d. Power Generation Sector.....	III-38
e. CAP Repayment	III-38
f. RRA	III-39
g. Indian Water Rights Settlement Litigation Costs	III-40
5. Summary of Socioeconomic Impacts	III-40
D. LAND USE.....	III-43
1. Introduction.....	III-43

2. Impact Analysis Methodology.....	III-43
a. M&I Sector.....	III-43
b. NIA Sector	III-45
c. Indian Sector.....	III-45
3. Affected Environment.....	III-46
a. General Land Use	III-46
b. M&I Land Use.....	III-47
c. Agricultural Land Use	III-47
d. Indian Land Use	III-47
(1) GRIC.....	III-47
(2) TON.....	III-48
(3) SC Apache Tribe	III-48
(4) Hopi Tribe.....	III-48
(5) Navajo Nation.....	III-49
e. Prime Farmland	III-49
4. Environmental Consequences.....	III-49
a. Prime Farmland	III-50
b. M&I Sector.....	III-50
(1) No Action Alternative.....	III-50
(2) Settlement and Non-Settlement Alternatives	III-51
c. NIA Sector	III-51
(1) No Action.....	III-51
(2) Settlement and Non-Settlement Alternatives	III-51
d. Indian Sector	III-51
(1) GRIC.....	III-51
(2) TON.....	III-52
(3) SC Apache Tribe	III-53
(4) Navajo Nation and Hopi Tribe	III-54
E. BIOLOGICAL RESOURCES	III-55
1. Introduction.....	III-55
2. Methodology	III-55
3. Affected Environment.....	III-56
a. Vegetation Associations	III-56
b. Fish and Wildlife	III-58
c. Colorado River Mainstem	III-58
d. Federally Listed Threatened and Endangered (T&E) Species	III-59
4. Environmental Consequences.....	III-63
a. Development of desertlands for agriculture.....	III-64
b. Conversion of desert to urban uses	III-64
c. Conversion of agricultural lands to urban uses	III-64
d. Conversion of agricultural lands to fallow fields	III-64
e. Impact to riparian areas from reductions in effluent discharge.....	III-65
f. Impacts to Colorado River mainstem.....	III-65
5. Impacts to T&E species	III-65
F. CULTURAL RESOURCES.....	III-67
1. Introduction.....	III-67
2. Impact Analysis Methodology.....	III-67
3. Affected Environment.....	III-69

a.	M&I Sector.....	III-69
b.	NIA Sector	III-70
c.	Indian Sector.....	III-70
4.	Environmental Consequences.....	III-71
5.	M&I Sector	III-72
a.	No Action Alternative.....	III-72
b.	Settlement and Non-Settlement Alternatives.....	III-72
6.	NIA Sector.....	III-72
a.	No Action Alternative.....	III-72
b.	Settlement and Non-Settlement Alternatives.....	III-72
7.	Indian Sector.....	III-73
a.	No Action Alternative.....	III-73
b.	Settlement and Non-Settlement Alternatives.....	III-73
(1)	GRIC.....	III-73
(2)	TON.....	III-73
(3)	SC Apache Tribe	III-73
(4)	Navajo/Hopi.....	III-74
G.	AIR QUALITY	III-75
1.	Impact Analysis Methodology.....	III-75
2.	Existing Conditions	III-76
3.	Impacts	III-77
a.	No Action Alternative.....	III-77
b.	Settlement Alternative and Non-Settlement Alternatives	III-80
4.	Summary of Air Quality Impacts	III-85
a.	Impacts related to urbanization/new construction.....	III-86
b.	Agricultural production	III-86
5.	Mitigation Measures.....	III-86
a.	Mitigation of Construction Impacts.....	III-86
b.	Mitigation of Air Quality Impacts.....	III-87
IV	OTHER ENVIRONMENTAL CONSIDERATIONS.....	IV-1
A.	Cumulative Impacts (40 CFR 1508.7, 1508.25)	IV-1
B.	Relationship Between Short-Term Uses and Long-Term Productivity (NEPA Section 102(2)(c)(v) and 40 CFR 1502.16)	IV-5
C.	Irreversible and Irretrievable Commitment of Resources (NEPA Section 102(2)(c)(v) and 40 CFR 1502.16).	IV-6
D.	Indian Trust Assets	IV-6
E.	Environmental Justice.....	IV-8
F.	Compliance with Environmental Statutes and Policies.....	IV-10
V	ENVIRONMENTAL COMMITMENTS.....	V-1
A.	CAP Water Allocated to M&I Entities.....	V-1
B.	CAP Water Allocated to Indian Entities.....	V-1
C.	NIA Entities.....	V-2
VI	LIST OF PREPARERS.....	V-1
VII	DISTRIBUTION LIST.....	VII-1
VIII	LIST OF ACRONYMS.....	VIII-1
IX	REFERENCES.....	IX-1
X	GLOSSARY.....	X-1
XI	INDEX.....	XI-1

TECHNICAL APPENDICES**VOLUME TWO**

- APPENDIX A – BACKGROUND ASSUMPTIONS FOR TECHNICAL ANALYSIS
- APPENDIX B – CAP ALLOCATION HISTORY
- APPENDIX C – FUTURE WATER USES BY MUNICIPALITIES
- APPENDIX D – SOCIOECONOMIC ANALYSIS
- APPENDIX E – BIOLOGICAL TECHNICAL INFORMATION AND DATA SUMMARIES
- APPENDIX F – SCOPING REPORT
- APPENDIX G – CULTURAL RESOURCES OVERVIEW FOR THE PROPOSED CENTRAL ARIZONA PROJECT WATER REALLOCATION PLAN
- APPENDIX H – AIR QUALITY CALCULATIONS

VOLUME THREE

- APPENDIX I – GROUNDWATER ANALYSIS
- APPENDIX J – MAINSTEM IMPACTS ANALYSIS
- APPENDIX K – CAP COST ALLOCATION AND REPAYMENT ANALYSIS
- APPENDIX L – INDIVIDUAL ENTITY DESCRIPTIONS
- APPENDIX M – RELEVANT CENTRAL ARIZONA WATER CONSERVATION DISTRICT BOARD BRIEFS
- APPENDIX N – ADWR CAP ALOCATION RECOMMENDATION LETTER
- APPENDIX O – STIPULATION FOR CAWCD V UNITED STATES
- APPENDIX P – COMMON CONVERSION FACTORS TO METRIC UNITS

LIST OF TABLES

	<u>Page</u>
II-1 Summary Table of New Allocations – M&I	II-17
II-2 Summary Table of New CAP Allocations – NIA	II-18
II-3 Summary Table of New Allocations – Indian	II-19
II-4 Summary of Alternatives	II-20
II-5 Effects of Alternatives on Selected Resources	II-21
III-1 Groundwater Impacts In Year 2051 for All Entities	III-26
III-2 Excess Land Under the RRA	III-33
III-3 First Round Economic Impacts on Three-County Area – NIA	III-36
III-4 First Round Economic Impacts on Three-County Area – Indian	III-37
III-5 Study Year Impacts of Construction of Indian Distribution Systems	III-38
III-6 Total Economic Impact on Three-County Area - Output	III-41
III-7 Total Economic Impact on Three-County Area - Jobs	III-41
III-8 Total Economic Impact on Three-County Area - Income	III-42
III-9 Land Ownership – Maricopa County	III-46
III-10 Land Ownership – Pinal County	III-46
III-11 Land Ownership – Pima County	III-47
III-12 Land Use Changes 2001-2051	III-50
III-13 Agricultural Acreage Developed by GRIC Under Action Alternatives	III-52
III-14 Federally Listed Threatened and Endangered Species	III-60
III-15 Summary of habitat variables for the cactus ferruginous pygmy-owl	III-62
III-16 Maricopa County Mobile Source Emission Projections	III-78
III-17 Maricopa County Agricultural and Fugitive Dust Emission Projections	III-78
III-18 Pinal County Emission Projections	III-79
III-19 Pima County Emission Projections	III-79
III-20 Net Agricultural Air Emissions Under the Settlement Alternative	III-81
III-21 Net Agricultural Air Emissions Under Non-Settlement Alternative 1	III-82
III-22 Net Agricultural Air Emissions Under Non-Settlement Alternative 2	III-83
III-23 Net Agricultural Air Emissions Under Non-Settlement Alternative 3A	III-84
III-24 Net Agricultural Air Emissions Under Non-Settlement Alternative 3B	III-85
IV-1 Applicable State Permits, Approvals and Regulatory Requirements	IV-15
IV-2 Applicable Contracts, Legislation, and Agreements	IV-18

LIST OF FIGURES

	<u>Following Page</u>
I-1 Central Arizona Project	I-2
I-2 History of Current CAP Water Supplies (1983 Record of Decision to Present)	I-5
II-1 Settlement Alternative – Distribution of CAP Water Supplies	II-6
II-2 Non-Settlement Alternative 1 – Distribution of CAP Water Supplies	II-10
II-3 Non-Settlement Alternative 2 – Distribution of CAP Water Supplies	II-11
II-4 Non-Settlement Alternative 3 – Distribution of CAP Water Supplies	II-13
II-5 No Action Alternative – Distribution of CAP Water Supplies	II-15
II-6 M&I Sector Location Map	II-16
II-7 Non-Indian Agricultural Sector Location Map	II-16
II-8 Indian Sector Location Map	II-16
III-1 General Location of Groundwater Model Areas	III-7
III-2 Comparison of Groundwater Level Impacts in Year 2051 for Pinal Subareas	III-14
III-3 Comparison of Groundwater Level Impacts in Year 2051 for GRIC	III-15
III-4 Estimated Groundwater Levels Occurring in the Vicinity of GRUSP	III-16
III-5 Comparison of Groundwater Level Impacts in Year 2051 for East SRV	III-17
III-6 Comparison of Year 2051 Impacts in QCIDD and NMIDD	III-17
III-7 Estimated Groundwater Levels Occurring in the Vicinity of the Agua Fria Recharge Facility	III-18
III-8 Comparison of Groundwater Level Impacts in Year 2051 for West SRV	III-18
III-9 Comparison of Groundwater Level Impacts in Year 2051 for San Xavier	III-20
III-10 Comparison of Groundwater Level Impacts in Year 2051 for the Tucson Area	III-20
III-11 Comparison of Groundwater Level Impacts in Year 2051 in TID	III-23
III-12 1997 Arizona Gross State Product by Sector	III-30
III-13 1999 Unemployment Rates	III-31
III-14 NIA Irrigated Acreage	III-34
III-15 NIA CAP Water Use	III-34
III-16 NIA Groundwater Use	III-34
III-17 Incremental Indian Agricultural Acreage at Build-Out	III-36
III-18 CAP Water Usage for Indian Irrigation at Build-Out	III-36